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Internal Governance and the Likelihood of Carbon Footprint Disclosure in Non-Financial Firms Listed on the Nigeria Exchange Group

Ernest Oshodin

Bright Igbinosa Oni

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Internal Governance and the Likelihood of Carbon Footprint Disclosure in Non-Financial Firms Listed on the Nigeria Exchange Group

By: Ernest Oshodin [1] and Bright Igbinosa Oni [2]

Abstract
This paper investigates the influence of internal governance on the carbon footprint disclosures by non-financial companies listed on the Nigeria Exchange Group from 2014 to 2023. The reputation of boardroom members was proxied alongside board independence, financial expertise, and the frequency of audit committee meetings. The reputation of board members was considered a factor in the study because of the effect sustainability disclosures may have on the reputation of a firm. A longitudinal design was adopted, and logit regression was the estimation method in the study. The findings revealed a significant relationship between board independence, financial expertise of board members, audit committee meetings, board members reputations, and the likelihood of carbon footprint disclosures. The study recommended that the provision on greenhouse gas emissions in the existing Climate Change Act of 2021 should be amended such that Nigerian companies are mandated to disclose the extent of their greenhouse gas emissions.

Keywords: *sustainability reporting, board reputation, board independence, governance, financial expertise*
JEL Codes: *M41*

1. Introduction

Climate change has recently been a source of concern globally due to its continual threat to human and natural ecosystems. It is a consequence of the emission of greenhouse gases such as carbon dioxide (CO2), nitrous oxide (NO2), and methane (CH4) into the atmosphere, which absorbs heat waves and culminates in global warming. These gases are the consequences of human activities through the burning of fossil fuels, deforestation, and dumping of waste. The majority of these activities are traced to corporate operations which have been on the increase since the industrial revolution. Thus, the rate of global warming has increased since the Industrial Revolution. Consequently, there has been an increase in temperature, precipitation, rising sea levels, drought, flooding, and disruption to ecosystems and biodiversity in many parts of the globe.

Many countries have signed into the Paris Agreement with the view of reducing the emission of greenhouse gases. The most daring of them all is the Briton who has made the boldest statement about having a net-zero emission of greenhouse gas come 2050 (Karim et al., 2021). China has

[1] *Department of Accounting, Faculty of Management Sciences, University of Benin, Benin City, Email: ernest.oshodin@uniben.edu*
[2] *Department of Finance, Faculty of Management Sciences, University of Benin, Benin City*

pegged hers for 2060; so have many other countries, including Nigeria (Uwagbulem, 2024). To curb the menaces associated with global warming, calls have been continuously made for clean sources of energy supplies, green investment, and a circular economy, and firms are advised to manage their greenhouse gas emissions with carbon accounting or green accounting (Kunia et al., 2020).

Green accounting, also termed carbon accounting, is a subset of environmental accounting that provides information on carbon emissions and programme development on carbon reduction (Kunia et al., 2020). It discloses carbon emission intensity, emission reduction performance, corporate governance, the strategy to combat the effect of climate change, and the opportunities and risks associated with climate change (Kelvin et al., 2017). The business paradigm has shifted from a single bottom line (profit) to a triple bottom line (profit, people, and planet). Besides the profitability of a firm, investors are interested in knowing how their investment impacts the environment. Thus, companies disclose environmental information to signal their performance on environmental issues (Li et al., 2019). However, because the market punishes companies that do not disclose environmental information (Carbon Disclosure Project, 2021; Matsumura et al., 2014), most companies may disclose their carbon emission information regardless of whether it is transparent or otherwise. Corporate governance is supposed to enhance the integrity of these disclosures (Karim et al., 2021; Mallin et al., 2013). Consequently, strong internal governance can drive carbon footprint disclosures in companies (Ben-Amar & Mcllkenny, 2015; Karim et al., 2021; Park et al., 2023).

1.2 Research Problem

A number of studies have in general investigated the effect of internal governance on environmental and sustainability accounting and in specific examined how internal governance affect the carbon emission disclosures of firms. Studies in this domain of research are amongst Liao et al. (2021), Atif et al. (2021), Karim et al. (2021), Park et al. (2023), Ezekiel et al. (2024) to mention few. The study of Liao et al. (2021) while investigating board of directors and their influence on CSR performance of firms, argued that mandating firms to increase the number of their external directors can have a positive influence on their CSR performance. Mainly because, the external directors sometimes could pay more attention to CSR issues than the internal directors

(Mering, 2024). In this their study, Atif et al. (2021) argued that firms with female board members can influence firms' decision to opt for renewable energy because female directors are more concern about ethical practises and environmental responsible behaviour (Jain & Jamali, 2016). Karim et al. (2021) found that strong internal governance, operationalised by board size, board independence, board gender diversity, audit committee independence, and audit expertise, can positively influence corporate carbon emission disclosure. This is because internal governance can drive carbon reduction motives. This is corroborated by the study of Ezekiel et al. (2024), which indicates that the board of directors of firms play a significant role in reducing carbon footprint through their commitment to environmental friendly activities.

Companies invest in sustainability activies to improve their company image (reputation), which in turn improves the reputation of its directors (Barnea & Rubin, 2010; Cespa & Cestone, 2007; Schwoy, 2023). Additionally, board members' reputations may be shared with their companies (Schwoy, 2023). Directors who are well-known for their environmental dedication can persuade their companies to invest more in environmental sustainability programs. This, in turn, makes the companies renowned and recognised as environmentally beneficial entities. The reputations of board members have always been overlooked in studies in this field of study, whereas the emphasis on internal governance has always been board size, board gender, board members' ethnicity, and board members' educational qualifications. This study adds to the literature in this field by investigating the impact of board members' reputations on carbon footprint disclosures. Thus, the purpose of this study is to examine the impact of board members' reputation, independence, financial expertise, and audit committee meetings on the likelihood of carbon footprint disclosure in non-financial enterprises listed on the Nigeria Exchange Group.

The remaining part of this study is structured as follows: Section 2 reviews the literature on carbon footprint disclosure and internal governance; Section 3 discusses the methodology; Section 4 presents the data analysis and discussion; and Section 5 concludes the study.

2. Literature Review

Companies maintain multi-contracts with several stakeholders in their operating environments. The contract between companies and their immediate environments is explained by legitimacy theory (Deegan et al., 2002; Deegan & Gordon, 1996; O'Donovan, 2002; Patten, 1992). Legitimately, companies as part of society should plough part of their profits back as corporate social responsibilities. The survival of the companies can be enhanced if the public has a good impression of their corporate social responsibilities (Deegan et al., 2002). This impression can be based on companies' voluntary disclosures of their impacts on the environment through carbon footprint disclosure.

Carbon footprint disclosure is a dimension of environmental accounting that discloses a company's efforts to reduce carbon emissions in its environment. Carbon footprint in the environment is due to the emission of carbon dioxide, carbon monoxide, sulphur dioxide, and nitrogen dioxide, as well as the disposal of various forms of waste by companies. Companies have been argued to directly emit greenhouse gases from some sources they controlled and owned (scope 1). They indirectly emit it, through purchased utilities (scope 2) and through companies' value chain, employee transportation to and from the organisation, and business trips (scope 3) (Karim et al., 2021; Park et al., 2023). Consequently, corporations are pressured to disclose this information as part of environmental accounting in the countries that have mandated carbon footprint disclosures.

There has been an increasing trend in recent years for companies in some developed economies to rely on standards and rules such as the Global Reporting Initiative, United Nations Global Compact, and Carbon Disclosure Project because of the growing importance of green reporting. Nigeria, on the other hand, is not immune to this burgeoning tendency. As a result, most companies presenting information about social and environmental protection actions rely on voluntary reporting systems like the Global Reporting Initiative (GRI) guidelines, the World Resource Institute's Greenhouse Gas (GHG) Protocol, and, more recently, the International Integrated Reporting Framework (IIRF) (Agyemang et al., 2020).

2.2 Internal Governance and Carbon Footprint Disclosures

Internal governance relates to the board of directors, CEO, internal control, and other internal arrangements through which a company is controlled. For this study, internal governance is discussed as board independence, board member expertise, audit committee meetings, and board reputation.

2.2.1 Board Independence and Carbon Footprint Disclosures

The independence of a boardroom is a phrase that describes a boardroom dominated by outside directors. An outside director has no financial benefit other than his or her fixed salary (Abrahamson & Park, 2014). The presence of outside directors in a boardroom can moderate the relationship between a large board and narrative disclosure. It is to this extent that it is argued that the presence of outside board members can increase the independence of a boardroom of a company and the voluntary disclosure of such a company (Allini et al., 2016; Elshandidy et al., 2015; Shan, 2019). This is in tandem with the studies of Odeemalam and Okafor (2018), Haladu (2018), and Adinehzadeh et al. (2018). Also, independent board members encourage more transparency, which can be achieved by disclosure of non-financial information. To this extent, the independent members of a board can encourage more disclosure of carbon emission information (Liao et al., 2014; Nainggolan, 2014; Naseem et al., 2017). However, this cannot be said about conservative independent board members who may want to consider the cost implications of more disclosures (Beji et al., 2021; Bektur & Arzova, 2020; Nasih et al., 2019).

2.2.2 Board Financial Expertise and Carbon Footprint Disclosures

Financial literacy is the ability to comprehend financial information present in an annual report. Some directors are expected to possess the basic knowledge to understand financial information. This basic knowledge could be achieved through education in accounting disciplines or experience gained over the years. The financial expertise of the board of directors is an indication of strong internal governance that influences sustainability disclosure (Al-Shaer & Zaman, 2018). This is in tandem with Sani et al. (2022).

2.2.3 Audit Committee Meetings and Carbon Footprint Disclosures

An audit committee is a committee of the board of directors responsible for overseeing the financial reporting process, ensuring the accuracy of financial information, and compliance with laws and regulations (Zadeh et al., 2023). These roles have been recently expanded to ensure compliance with sustainability guidelines following the introduction of the Global Reporting Initiative and other relative guidelines (MacLaughin et al., 2021). Audit committees are expected to meet and discuss the way and manner the responsibilities of the committees can be carried out. More meetings are held when there are many responsibilities. In Nigerian companies, audit committee meetings are expected to be held at least once every quarter (Nigerian Code of Corporate Governance, 2018). Consequently, an audit committee meeting should be held four times a year. This enables the committee to complete its tasks, which includes ensuring that companies comply with the sustainability reporting guidelines (Buallay & Al-Ajmi, 2020). However, this is countered by the study of Lewa et al. (2025), which found a negative relationship between audit committee meetings and composite sustainability reporting, social reporting, and environmental reporting, respectively.

2.2.4 Board Reputations and Carbon Footprint Disclosures

A board member's reputation is the respect or accolades enjoyed by a board member for actualising a particular feat. It pools the public to the companies of a reputable board. Thus, it can be described as the invincible force that makes the public always want to transact with companies. The reputation of the board members cannot be isolated from the reputation of their companies because corporate identity is infused with the personalities of its leaders (Sohn et al., 2009). The board members, as leaders of corporate entities, share their reputations with the companies they are leading (Huston et al., 2001). Although there exist little or no studies in the domain, the association between repute boardroom and carbon footprint disclosures can be inferred from the effect of CEO reputation on sustainability disclosures. The boardroom of a company so reputable for reducing its carbon footprint is likely to encourage carbon footprint disclosure. This is in tandem with Barnea and Rubin (2010) and Cespa and Cestone (2007) but contradicted by Schwoy et al. (2023). In line with the existing research on the variables of interest in this study, the framework below is constructed.

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2.1 Conceptual Framework

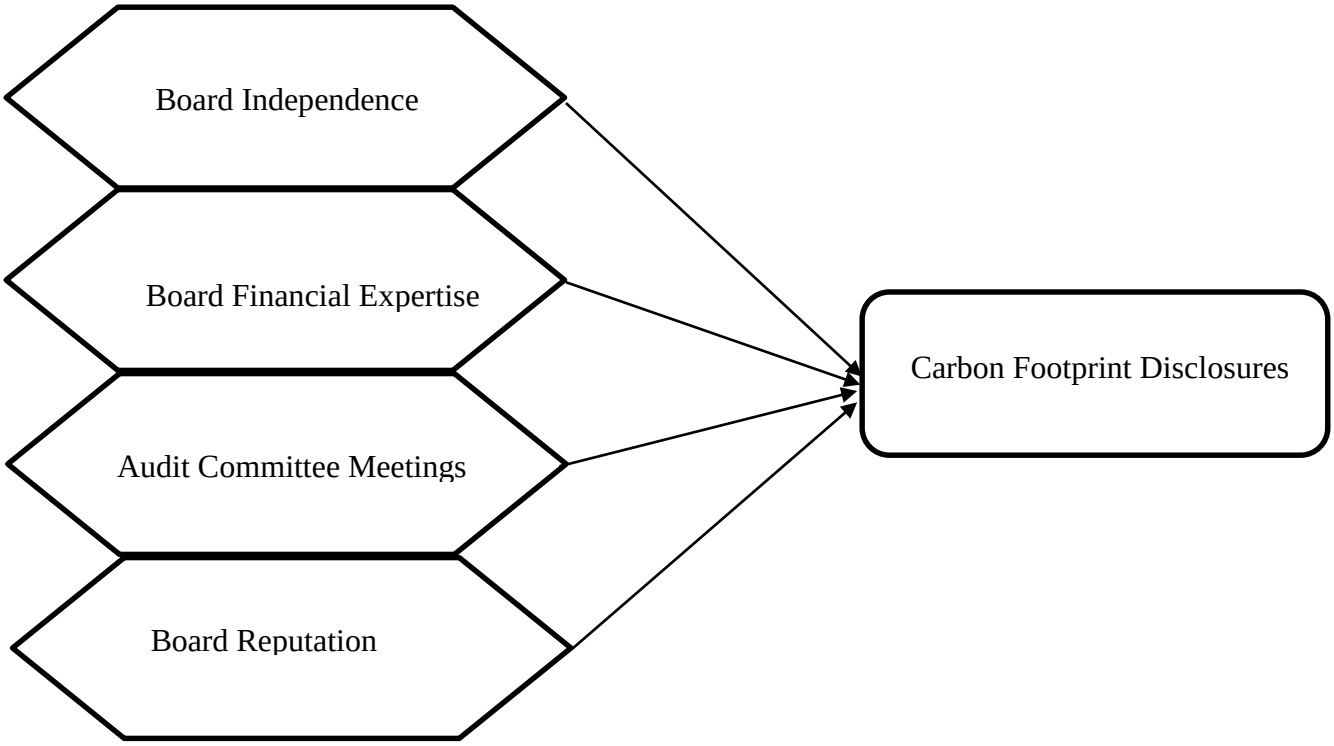

Figure 2.1: Conceptual Framework

3 Methodology

A longitudinal research design was adopted in this study because the data used were over 10 years (2014-2023). The companies in the non-financial sectors were investigated in the study. Sixty-three (63) companies were selected from about the 103 listed as of 31st December, 2024. The carbon footprint of companies in Nigeria was measured by dichotomy variables because it is voluntary disclosed in Nigeria. Consequently, only a handful of companies have commenced detailed disclosure of carbon footprint information as part of their environmental accounting. The data on the internal governance of companies were sourced from their annual reports and measured as follows: board independence was measured by the ratio of the number of non-executive directors to the total directors; board members financial expertise was measured by dichotomy variables based on the presence of directors with accounting/finance knowledge; audit committee meetings were measured by the absolute number of audit committee meetings held in a year. Board reputation was assessed using dichotomous variables based on The CSR-in-action's official evaluation of firms' investments in corporate social responsibility initiatives. Companies placed in

the top 50 are noted for their active involvement in CSR initiatives. The boards of such companies are known for their dedication to CSR efforts. Thus, the board of firms listed in the first 50th position in the ranking by CSR-in-action is measured as 1; otherwise, it is rated as 0.

The logit regression is the method of estimation. The econometric model of Oyekale et al. (2022) was adapted as stated.

CFP it = a0 + a1 BIND t + a2 BEXP it + a3 ACMit + a4 BREP it + a5 FSIZE it + ε it ----i

Where CRP = carbon footprint disclosures; BIND = board independence; BEXP = board member financial expertise; ACM = audit committee meeting; BREP = board reputation; and FSIZE = firm size.

4 Results and Discussion

Table 4.1: Descriptive Statistics

	CFP	BIND	BEXP	ACM	BREP	FSIZE
Mean	0.4444	0.6959	2.1111	3.9444	0.27	7.0684
Maximum	1	1.125	7	8	1	9.4175
Minimum	0	0.4	0	2	0	5.2197
Std. Dev.	0.4988	0.1081	1.3219	0.8607	0.19	1.1667
J-Bera	21.013	21.853	42.063	134.474	22.519	9.5709
Prob	0.0000	0.0000	0.0000	0.0000	0.0000	0.0083

Source: Researcher's Compilation

Table 4.1 presents the summary statistics of the data on the variables in this study. The mean value of 0.44 for CFP indicates that, on average, there is about a 44% likelihood for the sampled companies to disclose carbon footprint information in the time frame of this study. The implication is that carbon footprint information is rarely disclosed by companies in Nigeria because it is still voluntarily required. The mean value of 0.6959 for BIND indicates that about 70% of the boards are external directors representing the interests of the shareholders of the sampled companies. The mean value of 2.1111 for BEXP is indicative that the members of directors with financial experience are, on average about 2 members in each of the sampled companies. This implies that the sampled companies have always complied with the requirement of the code of corporate governance of 2018 that mandates boardrooms to have at least one of its directors as a member with financial expertise. The mean value of 3.9444 for ACMEET indicates that the audit committee members of the sampled companies meet on average about 4 times a year in line with

the requirements of the code of corporate governance in Nigeria. The mean value of 0.27 for BREP indicates that, on average about 27% of the boardrooms investigated in the study are in the companies ranked in the top 50 corporate social responsibility firms in Nigeria.

Table 4.2: Correlation Analysis

Probability	CFP	BIND	BEXP	ACMEET	BREP	FSIZE
CFP	1					
BIND	0.39***	1				
	0.0000					
BEXP	0.33***	0.37***	1			
	0.0000	0.0000				
ACMEET	0.35***	0.09	-0.12	1		
	0.0000	0.3021	0.1768			
BREP	0.22**	0.28***	-0.19*	0.28***	1	
	0.0122	0.001	0.0317	0.0014		
FSIZE	0.42***	0.51***	0.44***	0.21**	0.29***	1
	0.0000	0.0000	0.0000,	0.0165	0.0009	

Researcher's compilation

Note: *** significant at 1%, ** significant at 5%, * significant at 10%

Table 4.2 presents the correlation analysis of the variables of interest in the study. The probability values of less than 5% in the relationship between CRP and BIND {0.000}, BEXP {0.000}, ACM {0.000}, BREP {0.0122}, and FSIZE {0.000} indicate a significant relationship between a likelihood of carbon footprint disclosures and board members' independence, a likelihood of board members expertise, audit committee meetings, a likelihood of board members reputations, and firm size, respectively. Also, board members' independence is significantly related to the likelihood of board members' expertise {0.0000}, the likelihood of board members' reputations {0.0010}, and firm size {0.0000}, and it is insignificantly related to audit committee meetings {0.3021}. The likelihood of board members' expertise is related significantly to the likelihood of board members' reputations {0.0317} and firm size {0.0000} but, the relationship between the likelihood of board members' expertise and audit committee meetings is not significant {0.1768}. The audit committee meeting is significantly related to the likelihood of board members'

reputations {0.0014} and firm size {0.0165}. Finally, there exists a statistical relationship between the likelihood of board members' reputations and firm size {0.0009}.

Table 4.3: Logit Regression Analysis

Variable	Coeff	P-Value
C	-12.46***	0.00
BIND	5.06*	0.08
BEXP	0.6***	0.00
ACMEET	1.26***	0.00
BREP	0.21*	0.07
FSIZE	0.27	0.26

Researcher's Compilation

Note: *** significant at 1%, ** significant at 5%, * significant at 10%

The coefficient of 5.06 and the probability value 0.08 for the association between BIND and CFP in Table 4.3 indicate a significant positive relationship between board independence and the likelihood of carbon footprint disclosures in Nigerian companies. This suggests that a unit increase in the number of independent members in a boardroom of the sampled companies can bring about more than a 500% increase in the likelihood of carbon footprint disclosures. This implies that besides protecting shareholders' interests, the outside board members in Nigerian companies care about the sustainability of the business environment. This is in tandem with the study of Odeemalam and Okafor (2018), Haladu (2018), Adinehzadeh et al. (2018), and Liao et al. (2014). However, a conservative independence board member may not toe this path because of its cost implication (Beji et al., 2021; Bektur & Arzova, 2020; Nasih et al., 2019).

The coefficient of 0.6 and probability value of 0.00 in the relationship between BEXP and CFP in Table 4.3 indicates a significant positive relationship exists between the likelihood of a financial expert in a boardroom and the likelihood of carbon footprint disclosures in Nigeria, suggesting that a unit increase in the probability that a financial expert in a boardroom can lead to about a 60% increase in the likelihood of carbon footprint disclosures by Nigerian non-financial companies. This shows that the board members with financial expertise in the boardrooms of the

sample companies appreciate the effect of disclosing carbon footprint information on the overall performance of companies. This finding is in tandem with Al-Shaer and Zaman (2018) and Abdulsalam-Koaje and Babangida (2022).

Also, the logit regression in Table 4.3 reveals a significant positive relationship between audit committee meetings and the likelihood of carbon footprint disclosures. The coefficient of 1.26 in the relationship between ACM and CFP indicates that a unit increase in the audit committee meetings in a year can lead to a 126% increase in the likelihood of carbon footprint disclosures by the sampled companies. This is in tandem with Buallay and Al-Ajmi (2020) but contradicts the study of Lewa et al. (2025), which found a negative relationship between audit committee meetings and composite sustainability reporting, social reporting, and environmental reporting, respectively. Further, the coefficient of 0.26 and the probability value of 0.07 in the relationship between BREP and CFP suggest a significant positive relationship between the likelihood of board members' reputations and the likelihood of carbon footprint disclosures. This suggests that a unit increase in the likelihood of reputable boardrooms in the sampled companies can bring about a 126% increase in the chance that a carbon footprint is disclosed by these companies. This implies that the environmentally reputable members in the boardrooms understand the effect of environmentally sensitive issues on their reputations. This finding is supported by Barnea and Rubin (2010) and Cespa and Cestone (2007) but contradicted by Schwoy et al. (2023).

5 Conclusion

The sustenance of the environment has become a major concern to the comity of nations, with different recommendations being churned out to see the earth becoming a better place for its inhabitants. Of more concern is the issue of global warming, which recently posed more threat than before; consequently, all hands are on the desk to contain it. The company, being a major emitter of greenhouse gases, is encouraged to make concerted efforts in its eradication. Whether or not a company takes any step in this direction is a function of the reputation it wishes to build or enhance. Interested in this, the effects of board reputation alongside board independence, board expertise, and audit committee meetings on carbon footprint disclosure were investigated. The investigation revealed that each of the proxies of internal governance investigated in the study has a significant positive influence on carbon footprint disclosures. The study recommends that the

provision on greenhouse gas emissions in the existing Climate Change Act of 2021 should be amended such that Nigerian companies are mandated to disclose the extent of the greenhouse gas emissions and the actions taken to combat the same in their annual reports. This can enhance the robustness of the sustainable information disclosed by companies in Nigeria.

References

Abrahamson, E., & Park, C. (1994). Concealment of negative organisational outcomes: An agency theory perspective. *Acad. Manag. J. 5*, 1302–1334.

Abrahamson, E., & Park, C., 1994. Concealment of negative organisational outcomes: An agency theory perspective. Academic Management Journal. 5, 1302–1334.

Adinehzadeh, R., Jaffar, R., Shukor, Z. A., & Abdul Rahman, M. R. C. (2018). The mediating role of environmental performance on the relationship between corporate governance mechanisms and environmental disclosure. *Asian Academy of Management Journal of Accounting & Finance*, *14*(1)

Allini, A., Manes Rossi, F., & Hussainey, K., 2016. The board's role in risk disclosure: An exploratory study of Italian listed state-owned enterprises. *Publ. Money Manag. 2*, 113–120.

Al-Shaer, H., & Zaman, M., 2018. Credibility of Sustainability-Basel reports: The contribution of audit committees. *Bus. Strat. Environ. 7*, 973–986.

Atif, M., Hossain, M., Alam, M.S., & Goergen, M. (2021). Does board gender diversity affect renewable energy consumption? *Finance 66*, 101665.

Barnea, A., & Rubin, A. (2010). Corporate social responsibility as a conflict between shareholders. *J. Bus. Ethics 97*, 71–86. https://doi.org/10.1007/s10551-010-0496-z

Beji, R., Yousfi, O., Loukil, N., & Omri, A. (2021). Board diversity and corporate social responsibility: Empirical evidence from France. *Journal of Business Ethics, 173(*1), 133-155

Bektur, C., & Arzova, S.B. (2020). The effect of women managers in the board of directors of companies on the integrated reporting: Example of Istanbul Stock Exchange (ISE) sustainability index. *Journal of Sustainable Finance and Investment, 12(*2), 638-654

Ben-Amar, W., & McIlkenny, P. (2015). Board effectiveness and the voluntary disclosure of climate change information. *Bus. Strateg. Environ. 24* (8), 704–719.

Buallay, A., & Al-Ajmi, J. (2020). The role of audit committee attributes in corporate sustainability reporting: Evidence from banks in the Gulf Cooperation Council. *Journal of Applied Accounting Research, 21(*2), 249–264.

Carbon Disclosure Project (2021). Climate change - CDP [ONLINE] Available at: https://www.cdp.net/en/climate. (Accessed 17 March 2021).

Cespa, G., & Cestone, G. (2007). Corporate social responsibility and managerial entrenchment. *J. Econ. Manag. Strat. 16*, 741–771. https://doi.org/10.1111/j.1530-9134.2007.00156.x.

Deegan, C., & Gordon, B. (1996). A study of the environmental disclosure practices of Australian corporations. *Accounting and Business Research, 26(3*), 187-199. https://doi.org/10.1080/00014788.1996.9729510

Deegan, C., Rankin, M., & Tobin, J. (2002). An examination of the corporate social and environmental disclosures of BHP from 1983-1997: A test of legitimacy theory. *Accounting, Auditing & Accountability Journal, 15(3*), 312-343. https://doi.org/10.1108/09513570210435861

Ezekiel, O., Olugbenro, S., Omojola, S., Wright, O., & Aregbesola, O. (2024). Influence of board characteristics on carbon emission disclosure: Evidence from the Nigerian Oil and Gas Sector. *International Journal of Energy Economics and Policy, 14(5*), 582-592.

Elshandidy, T., & Neri, L. (2015). Corporate Governance, Risk Disclosure Practices, and Market Liquidity: Comparative Evidence from the UK and Italy. Corp. Gov. https:// doi.org/10.1111/corg.12095.

Haladu, A. L. (2018). *Determinants of sustainability reporting by environmentally sensitive firms in Nigeria* (Doctoral dissertation, Doctoral thesis, Utara University Malaysia).

Karim, A. E., Albitar, K., & Elmarzouky, M. (2021). A novel measure of corporate carbon emission disclosure, the effect of capital expenditures and corporate governance. *Journal of Environmental Management, 290*. http://www.elsevier.com/locate/jenvman

Kelvin, C., Daromes, F. E., & Ng, S. (2017). The Effect of Carbon Emission Disclosure as Performance Improvement Mechanism to Create Firm Value. *Dinamika Akuntansi, Keuangan Dan Perbankan, 6*(1), 1-18

Kunia, P., Darlis, E., & Putria, A. A. (2020). Carbon emission disclosure, good corporate governance, financial performance, and firm value. *Journal Asian Finance, Economics and Business, 7*(12), 223-231. doi:10.13106/jafeb

Lewa, E. M., Gatimbu, K. K., & Kariuki, P. W. (2025). Sustainability reporting in sub-Sharan Africa: Does audit committee diversity and executive compensation matter? *Social Sciences & Humanities Open, 11*. https://doi.org/10.1016/j.ssaho.2024.101262. www.sciencedirect.com/journal/social-sciences-and-humanities-open

Li, Z., Liao, G., Albitar, K., 2019. Does corporate environmental responsibility engagement affect firm value? The mediating role of corporate innovation. *Bus. Strat. Environ. 3, 1045–1055.*

Liao, C. H., San, Z., Tsang, A., & Yu, L. (2021). Board reforms around the world: The effect on corporate social responsibility. *Corporate Governance 29 (*5), 496–523.

Mallin, C., Michelon, G., & Raggi, D. (2013). Monitoring intensity and stakeholders' orientation: How does governance affect social and environmental disclosure? *Journal of Business Ethics, 1*, 29–43.

Matsumura, E. M., Prakash, R., & Vera-Munoz, S. C. (2014). Firm-value effects of carbon emissions and carbon disclosures. *Accounting Review, 2,* 695–724.

McLaughlin, C., Armstrong, S., Moustafa, M. W., & Elamer, A. A. (2021). Audit committee diversity and corporate scandals: Evidence from the UK. *International Journal of Accounting and Information Management, 29(*5), 734–763. https://doi.org/ 10.1108/IJAIM-01-2021-0024

Naseem, M.A., Riaz, S., Rehman, R., Ikram, A., & Malik, F. (2017). Impact of board characteristics on corporate social responsibility disclosure. *The Journal of Applied Business Research, 3(4*), 801-810

Nasih, M., Harymawan, I., Paramitasari, Y.I., Handayani, A. (2019). Carbon emissions, firm size, and corporate governance structure: Evidence from the mining and agricultural industries in Indonesia. *Sustainability, 11(*9)

O'Donovan, G. (2002). Environmental disclosures in the annual report: Extending the applicability and predictive power of legitimacy theory. *Accounting, Auditing & Accountability Journal, 15(3*), 344-371. https://doi.org/10.1108/09513570210435870

Odoemelam, N., & Okafor, R. G. (2018). The influence of corporate governance on environmental disclosure of listed non-financial firms in Nigeria. *Indonesian Journal of Sustainability Accounting and Management*, *2*(1), 25-49.

Oyekale, P. J., Olaoye, S. A., & Nwaobia, A. N. (2022). Corporate governance and environment sustainability in non-financial companies quoted in Nigeria. *Journal of Finance and Accounting,* 10(2), 121-131.

Park, J., Lee, J., & Shin, J. (2023). Corporate governance, compensation mechanisms, and voluntary disclosure of carbon emissions: Evidence from Korea. *Journal of Contemporary Accounting and Economics*. https://doi.org/10.1016/j.jcae.2023.100361. Retrieved from www.elsevier.com/locate/jcae

Patten, D. M. (1992). Intra-industry environmental disclosures in response to the Alaskan oil spill: A note on legitimacy theory. *Accounting, Organizations and Society, 17(5*), 471-475. https://doi.org/10.1016/0361-3682(92)90042-Q

Sani, A. B., Abdulsalam-Ka'oje, N., & Babangida, M. A. (2022). Corporate Governance Mechanisms and the Practice of Sustainability Activities in Nigeria.

Schwoy, S., Dutzi, A., Corten, M,. & Steijvers, T. (2023). Staging or real commitment? CEO reputation management as a moderating of the influence of firm size on corporate social responsibility performance and controversies. *Journal of Cleaner Production*, 410. https://doi.org/10.1016/j.jclepro.2023.137325. www.elsevier.com/locate/jclepro

Schwoy, S., Dutzi, A., Corten, M., & Steijvers. T. (2023). Staging or real commitment? CEO reputation management as a moderator of the influence of firm size on corporate social responsibility performance and controversies. doi.org/10.1016/j.jclepro.2023.137325. Retrieved from www.elsevier.com/locate/jclepr

Shan, Y. G. (2019). Do corporate governance and disclosure tone drive voluntary disclosure of related-party transactions in China? *J. Int. Account. Audit. Taxat. 34*, 30–48.

Uwaegbulam, C. (2024). COP28 roadshow: Nogeria's gain in push for new climate action. The Guardian Nigeria News. https://guardian.ng/news/cop28-roadshow-nigerias-gains-in-push-for-new-climate-action/

Zadeh, N. R., Askarany, D., Shirzad, A., & Faghani, M. (2023). Audit committee features and earnings management. https://doi.org/10.1016/j.heliyon.2023.e20825